

**CPC****COOPERATIVE PATENT CLASSIFICATION****A01F**

**PROCESSING OF HARVESTED PRODUCE  
HAY OR STRAW PRESSES  
DEVICES FOR STORING AGRICULTURAL OR HORTICULTURAL  
PRODUCE** (devices for topping or skinning onions or flower bulbs [A23N 15/08](#))

**Guide heading:**

**A01F 1/00**      **Stationary apparatus or hand tools for forming or binding straw, hay or the like into bundles** (baling apparatus or presses [A01F 13/00](#), [A01F 15/00](#); mobile binders for use in the field [A01D 37/00](#), [A01D 39/00](#))

[A01F 1/02](#)      .    Hand-operated tools

[A01F 1/04](#)      .    Fastening or tying devices

[A01F 1/06](#)      .    Ties for bundles

**A01F 3/00**      **Hand-operated implements for cutting-up straw, hay or the like** (mechanically-driven straw cutters [A01F 29/00](#); cutting in general [B26](#) )

**Guide heading:**      **Threshing**

**A01F 5/00**      **Hand-operated implements for threshing**

**A01F 7/00**      **Threshing apparatus**

[A01F 7/02](#)      .    with rotating tools (threshing cylinders or concaves [A01F 12/18](#))

[A01F 7/04](#)      . .    with axles transverse to the feeding direction

[A01F 7/06](#)      . .    with axles in line with the feeding direction; { Axial threshing machines }

[A01F 7/062](#)      . . .    { with a rotating cage }

[A01F 7/065](#)      . . .    { with cage sweep mechanisms }

[A01F 7/067](#)      . . .    { with material-flow influencing means }

[A01F 7/70](#)      .    with flails

**A01F 11/00**      **Threshing apparatus specially adapted for maize  
Threshing apparatus specially adapted for particular crops other than cereals**

[A01F 11/02](#)      .    for flax

[A01F 11/04](#)      .    for clover or like seeds, e.g. lucerne

- A01F 11/06 . for maize, e.g. removing kernels from cobs
- A01F 11/08 . for palm fruit, e.g. releasing the fruit from the stalk
- A01F 12/00** **Parts or details of threshing apparatus** (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))
  - A01F 12/10 . Feeders
  - A01F 12/12 . . without band-cutters
  - A01F 12/14 . . with band-cutters
  - A01F 12/16 . . Safety devices
  - A01F 12/18 . Threshing devices
    - A01F 12/181 . . {Adjustable threshing mechanisms }
    - A01F 12/182 . . {Stripper beaters after the threshing drum }
    - A01F 12/184 . . {Cleaning means }
    - A01F 12/185 . . {Mounting means }
    - A01F 12/187 . . {Vibratory threshing mechanisms }
    - A01F 12/20 . . Threshing cylinders with ribs
    - A01F 12/22 . . Threshing cylinders with teeth
    - A01F 12/24 . . One-part threshing concaves
    - A01F 12/26 . . Multi-part threshing concaves
    - A01F 12/28 . . Devices for adjusting the concaves
  - A01F 12/30 . Straw separators {, i.e. straw walkers, for separating residual grain from the straw ([grain cleaning A01F 12/44](#)) }
    - A01F 12/305 . . {combined with additional grain extracting means }
    - A01F 12/32 . . with shaker screens or sieves
    - A01F 12/34 . . . Sieve elements  
Linings for shakers
    - A01F 12/36 . . . . Sieve elements specially adapted for handling short straw
    - A01F 12/38 . . with juxtaposed and independently-moved shaker bars or the like
    - A01F 12/385 . . with endless straw-conveying surface
    - A01F 12/39 . . with straw carriers in the form of rotors or drums
    - A01F 12/395 . . Conical or cylindrical straw separators with internal working surface
  - A01F 12/40 . Arrangements of straw crushers or cutters
  - A01F 12/42 . Apparatus for removing awns from the grain
  - A01F 12/44 . Grain cleaners  
Grain separators
    - A01F 12/442 . . {Rotary cleaners }
    - A01F 12/444 . . {Fanning means }
    - A01F 12/446 . . {Sieving means }

- A01F 12/448 . . . {Sieve adjusting means }
- A01F 12/46 . Mechanical grain conveyers
- A01F 12/48 . Air conduits or blowers for grain
- A01F 12/50 . Sack-filling devices  
Counting or weighing devices
- A01F 12/52 . Arrangements for returning unthreshed grain to the threshing device
- A01F 12/54 . Arrangements for collecting or removing dust
- A01F 12/56 . Driving mechanisms for the threshing parts
- A01F 12/58 . Control devices  
Brakes  
Bearings
- A01F 12/60 . Grain tanks { (for combines [A01D 41/1208](#)) }
- Guide heading:** **Baling straw or the like** (baling presses in general, briquetting presses [B30B](#) )
- A01F 13/00** **Hand-operated baling apparatus**
- A01F 15/00** **Baling presses for straw, hay or the like** { making compressed stacks [A01D 85/00](#) }
- A01F 15/005 . {for conditioning bales, e.g. rebaling }
- A01F 15/02 . with press-boxes { ([A01F 15/046](#) takes precedence) }
- A01F 15/04 . Plunger presses
- A01F 15/042 . . {Plungers }
- A01F 15/044 . . {with open pressing chambers }
- A01F 15/046 . . {with press-boxes }
- A01F 15/06 . . with double-action plunger
- A01F 15/07 . Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
- A01F 15/0705 . . {Arrangements for continuous operation }
- A01F 15/071 . . {Wrapping devices (tying devices [A01F 15/141](#)) }
- A01F 15/0715 . . . {Wrapping the bale in the press chamber before opening said chamber }
- A01F 15/0765 . . {Rolling bales on the ground }
- A01F 15/08 . Details
- A01F 15/0816 . . {Devices for dispensing chemicals in bales during formation }
- A01F 15/0825 . . {Regulating or controlling density or shape of the bale }
- A01F 15/0833 . . . {for round balers }

- A01F 15/0841 .. {Drives for balers }
- A01F 15/085 ... {for round balers }
- A01F 15/0858 ... {for the tying devices or needles }
- A01F 15/0875 .. {Discharge devices }
- A01F 15/0883 ... {for round balers }
- A01F 15/10 .. Feeding devices for the crop material, {e.g. precompression devices (pick-ups [A01D 89/00](#)) }
- A01F 15/101 ... {Feeding at right angles to the compression stroke ([A01F 15/106](#) takes precedence) }
- A01F 15/106 ... {for round balers }
- A01F 15/12 .. Feeding devices for the ties
- A01F 15/14 .. Tying devices specially adapted for baling presses { independent binders [A01D 39/00](#) }
- A01F 15/141 ... {for round balers (wrapping devices [A01F 15/071](#)) }
- A01F 15/145 ... {Twine knotters }
- A01F 15/146 ... {Wire twisters }
- A01F 15/148 ... {Monitoring the tying, e.g. mistie detectors }
- A01F 15/16 .. Division blocks
- A01F 15/18 .. Endless belts, rolls or the like

**Guide heading:** **Accessories for threshing machines or baling presses** (loaders for sheaves, stacks or bales [A01D 87/12](#); trailers [B62D 63/06](#))

#### **A01F 17/00** **Straw conveyers for threshing machines or baling presses**

- A01F 17/02 . Mechanical conveyers
- A01F 17/04 . Pneumatic conveyers

#### **A01F 19/00** **Devices for securing threshing machines or baling presses to the ground, e.g. for compensating for unevenness of the ground**

#### **A01F 21/00** **Devices for protecting human beings for threshing machines or baling presses** (in combines [A01D 75/20](#); for feeders for threshing apparatus [A01F 12/16](#))

#### **A01F 25/00** **Storing agricultural or horticultural produce** **Hanging-up harvested fruit** (maturing fruit [A23N 15/06](#); arrangements in barns for preparatory treatment of tobacco [A24B 1/02](#); packing or storing hops [C12C 3/04](#))

- A01F 25/02 . Clamps  
Pits
- A01F 25/04 . Stacks, ricks or the like
- A01F 25/045 .. {Distributing arrangements in haystacks }
- A01F 25/08 .. Ventilating means

- A01F 25/10 . . . Shelters; {Open sheds or similar structures }
- A01F 25/12 . Racks for drying purposes
- A01F 25/125 . . . {Transport devices for hay racks }
- A01F 25/13 . Coverings ([A01F 25/14](#) takes precedence)
- A01F 25/14 . Containers specially adapted for storing
- A01F 25/16 . Arrangements in forage silos
- A01F 25/163 . . . {in tower silos }
- A01F 25/166 . . . {in trench silos }
- A01F 25/18 . . . Loading or distributing arrangements
- A01F 25/183 . . . . {Loading arrangements }
- A01F 25/186 . . . . {Distributing arrangements (for haystacks [A01F 25/045](#)) }
- A01F 25/20 . . . Unloading arrangements
- A01F 25/2009 . . . . {Top unloading units for tower silos }
- A01F 25/2018 . . . . {Bottom unloading units for tower silos }
- A01F 25/2027 . . . . {for trench silos }
- A01F 25/2036 . . . . . {Cutting or handling arrangements for silage blocks }
- A01F 25/22 . . . Ventilating arrangements
  
- A01F 29/00** **Cutting apparatus specially adapted for cutting hay, straw or the like** ([mowers combined with means for cutting up the mown crop A01D 43/08](#))
  
- A01F 29/005 . . {for disintegrating and cutting up bales of hay, straw or fodder (for unrolling round bales [A01D 87/127](#)) }
- A01F 29/01 . . specially adapted for being mounted on or drawn by a tractor, e.g. field choppers
- A01F 29/02 . . having rotating knives with their cutting edges in a plane perpendicular to their rotational axis
- A01F 29/025 . . . {with feeding direction parallel to axis }
- A01F 29/04 . . . with feeding direction transverse to axis
- A01F 29/06 . . having rotating knives with their cutting edges on a cylinder surface, e.g. of the helical-type
- A01F 29/08 . . having reciprocating knives
- A01F 29/09 . . Details
- A01F 29/095 . . . { Mounting or adjusting of knives }
- A01F 29/10 . . . Feeding devices
- A01F 29/12 . . . Discharge means ([loaders for hay or like field crop having blowers A01D 87/10](#))
- A01F 29/14 . . . Drives
- A01F 29/16 . . . Safety devices, e.g. emergency brake arrangements
- A01F 29/18 . . . . for protecting human beings

A01F 29/22 . . Arrangement of knife sharpening devices

**Guide heading:**

**A01F 2009/00      Threshing machines with flails  
Threshing devices with flails for combines**

**Guide heading:**

**A01F 2012/00      Parts or details of threshing apparatus** (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))

A01F 2012/18 . Threshing devices  
A01F 2012/188 . . Rethreshing devices

**A01F 2015/00      Baling presses for straw, hay or the like** { making compressed stacks [A01D 85/00](#) }

A01F 2015/04 . Plunger presses  
A01F 2015/048 . . Anti-return systems for the material in the pressing chamber when the plunger moves backwards

A01F 2015/07 . Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing  
A01F 2015/071 . . {Wrapping devices (tying devices [A01F 15/141](#)) }  
A01F 2015/0715 . . . {Wrapping the bale in the press chamber before opening said chamber }  
A01F 2015/072 . . . . Braking means for the film roll in balers which wrap the bale before opening the pressing chamber in order to stretch the film while wrapping.

A01F 2015/0725 . . . Film dispensers for film rollers in a satellite type wrapper, e.g. holding and tensioning means for the film roller (the rotating arm itself [A01F 2015/073](#))

A01F 2015/073 . . . Features related to the horizontal rotating arm of a wrapping device of the satellite type (features of film dispensers [A01F 2015/0725](#))

A01F 2015/0735 . . . Combined machines that include a press bale and a wrapping device in a further step, e.g. turning table, not in the same closed pressing chamber

A01F 2015/074 . . . Mechanisms for discharging a bale from the wrapping machine.  
A01F 2015/0745 . . . Special features of the wrapping material for wrapping the bale.  
A01F 2015/075 . . . Opening the pressing chamber before wrapping, and then wrapping by rotating the bale without displacing it out of the open pressing chamber

A01F 2015/0755 . . . Configuration of support surfaces which can move in order to rotate a bale around at least one axis while wrapping

A01F 2015/076 . . . Wrapping device incorporating sensors  
A01F 2015/077 . . Pressing chamber formed by belts and rollers.  
A01F 2015/0775 . . Pressing chambers with fix volume  
A01F 2015/078 . . Pressing chamber formed exclusively by flexible elements, e.g. belts  
A01F 2015/0785 . . Latching or locking means for the tailgate of the rotobaler.  
A01F 2015/079 . . Sledge for rollers of the pressing chamber.

- A01F 2015/0795    ..    Pressing chamber with variable volume
- A01F 2015/08    .    Details
- A01F 2015/0808    ..    Balers incorporate an inclinometer
- A01F 2015/0841    ..    {Drives for balers }
- A01F 2015/0858    ...    {for the tying devices or needles }
- A01F 2015/0866    ....    Clutching means for the knotting process  
Bale length measuring means for triggering the clutching mean
- A01F 2015/0875    ..    {Discharge devices }
- A01F 2015/0891    ...    Weighing the finished bale before falling to ground
- A01F 2015/10    ..    Feeding devices for the crop material, {e.g. precompression devices (pick-ups [A01D 89/00](#)) }
- A01F 2015/101    ...    {Feeding at right angles to the compression stroke ([A01F 15/106](#) takes precedence) }
- A01F 2015/102    ....    the pressing chamber is fed from the bottom side
- A01F 2015/103    ....    the pressing chamber is fed from a lateral side
- A01F 2015/105    ....    the pressing chamber is fed from the top side
- A01F 2015/107    ...    Means for withdrawing knives, rotor or walls of the feeding chamber in case of plugging or congestion
- A01F 2015/108    ...    Cutting devices comprising cutter and counter-cutter
- A01F 2015/14    ..    Tying devices specially adapted for baling presses { independent binders [A01D 39/00](#) }
- A01F 2015/141    ...    {for round balers (wrapping devices [A01F 15/071](#)) }
- A01F 2015/143    ....    Guiding fingers for twines in order to avoid the slippage of twines to the sides of the bale when tying it
- A01F 2015/18    ..    Endless belts, rolls or the like
- A01F 2015/183    ...    Constructional details of belts of the press chamber
- A01F 2015/186    ...    Constructional details of rollers or the bearings of the rollers of the press chamber
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- A01F 2025/00    Storing agricultural or horticultural produce**  
**Hanging-up harvested fruit** ([maturing fruit A23N 15/06](#); [arrangements in barns for preparatory treatment of tobacco A24B 1/02](#); [packing or storing hops C12C 3/04](#))
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- A01F 2025/14    .    Containers specially adapted for storing
- A01F 2025/142    ..    Machinery for making sausage-like groups of bales by wrapping or bagging ([for bagging of loose material A01F 2025/145](#))
- A01F 2025/145    ..    Bagging machines for loose materials making some kind of "sausage" on the field ([making sausage-like groups of bales A01F 2025/142](#))
- A01F 2025/147    ..    the containers are specially adapted for storing or drying the products in vacuum
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- A01F 2025/16    .    Arrangements in forage silos
- A01F 2025/20    ..    Unloading arrangements
- A01F 2025/2027    ...    {for trench silos }
- A01F 2025/2045    ....    Unloading arrangements including a conveyor belt for transferring the material to a hopper

<a href="#">A01F 2025/2054</a>	....	Machinery for cutting successive parallel layers of material in a trench silo (for shredding <a href="#">A01F 2025/2063</a> )
<a href="#">A01F 2025/2063</a>	....	Machinery for shredding successive parallel layers of material in a trench silo
<a href="#">A01F 2025/2072</a>	....	Scoops with an extracting tool mounted inside or in the vicinity of said scoop
<a href="#">A01F 2025/2081</a>	....	Hydraulic features of the trench silos unloading devices, e.g. hydraulic circuits
<a href="#">A01F 2025/209</a>	....	Manual portable tools for unloading a silo, e.g. for cutting out a block